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AUTHORS: (8) Subashiyev, V.K. and Ravich, Yu.I.  
TITLE: (6) Contribution to the theory of valve photoeffect on p-n junctions  
PERIODICAL: (15) TRANS. FROM physica status solidi, v. 2: no. 8, (1962) 1043-1061, PP.

TEXT: The current-voltage characteristics are calculated for an illuminated p-n junction, allowing for an arbitrary spectral composition of the incident light and non-uniform properties of the n- and p-regions. The current flowing across the junction is found to consist of a component which is independent of the light intensity and varies exponentially with the applied voltage, and of a component which is independent of the applied voltage and varies in proportion to the illumination intensity (the dark and the short-circuit currents, respectively). The two components are expressible in terms of a special position function which, being independent of voltage and illumination, is calculated for the following cases: 1. The parameters characterizing the diffusion, the recombination and the drift of minority carriers are constant throughout the p- and the n-regions. 2. The parameter values change as a step-function. 3. A strong electric field

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Contribution to the theory of valve photoeffect...

is maintained in the n-region. 4. The thickness of the n-region is small. Certain results of this work can be used in determining the dark current-voltage characteristics of p-n junctions with inhomogeneous p- and n-regions. There are 8 figures.

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